



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,243	10/15/2001	Doron Handelman	HANDELMAN=1A	2683
1444	7590	11/03/2004	EXAMINER	
BROWDY AND NEIMARK, P.L.L.C.			CURS, NATHAN M	
624 NINTH STREET, NW				
SUITE 300			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20001-5303				2633

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/976,243	HANDELMAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nathan Curs	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 15 October 2001.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3,5-7,9-13 and 15-17 is/are rejected.  
 7) Claim(s) 4,8 and 14 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 15 October 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1, 4 and 5.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: figs. 2 and 3 do not show switching fabric element 55 referred to in the specification (page 38, line 24; page 41, line 14). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
  
2. The drawings are objected to because fig. 1 shows OSA elements 45 and 50 in addition to switching fabric element 55 and fig. 2, element 100, fig. 3, element 200 and fig. 4, element 300 are all equated with elements 45 and 50 of fig. 1 and each are called "optical switching apparatus"; however the role of the switching fabric element 55 from fig. 1 in relation to elements 100, 200 and 300 is not clear since it is not illustrated in figs. 2-4 or described in a way that makes its relationship to elements 100, 200 and 300 clear. Nor is it clear from the description of elements 100, 200 and 300 for figs. 2-4 why figure 1 contains two "OSA" elements, 45 and 50, when the claimed invention is described for one element 100, 200 or 300 in figs. 2-4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply

to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 5-7, 9-13 and 15-17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6, 8, 12, 13, 17, 18 and 22-25 of U.S. Patent No. 67631914 in view of Benhaddou et al. ("New multiprotocol

WDM/CDMA-based optical switch architecture"; Benhaddou et al.; Simulation Symposium 2001. Proceedings. 34th Annual, 22-26 April 2001, Pages 285-291).

Regarding claims 1, 9 and 15, US Patent No. 67631914 claims an optical switching apparatus, optical signal and method for switching to a destination route upstream optical signal samples that are obtained from a first source, and upstream optical signal samples that are obtained from additional NCC sources and comprise at least one of the following: upstream optical signal samples that are separately obtained from NS out of the NCC sources; and n series of upstream optical signal samples that are separately obtained from n out of the NCC sources and are carried over n discrete channel wavelengths, wherein the upstream optical signal samples obtained from said first source are provided at a data rate DRS, the upstream optical signal samples obtained from the NS sources are provided at data rates DRSS.sub.j, and each series of upstream optical signal samples in the n series of upstream optical signal samples is carried over a discrete channel wavelength lambda.sub.i at a data rate DR.sub.i, where each of NCC, n and NS is an integer greater than or equal to one, i is an index running from 1 to n, and j is an index running from 1 to NS, the method comprising: optically converting said upstream optical signal samples that are obtained from said first source and said upstream optical signal samples that are obtained from said additional NCC sources into a broadband combined series of upstream optical signal samples at a combined data rate DR.sub.c which is greater than any of the following: DRS; any separate DRSS.sub.j; and any separate DR.sub.i; and routing said broadband combined series of upstream optical signal samples to said destination route (US Patent No. 67631914 claims 1 and 3 and claim 17). US Patent No. 67631914 claims a plurality of series of upstream optical signal samples but does not claim that upstream optical signal samples are obtained from a first source by a spread spectrum technique and that optical signal samples are obtained from NS of NCC additional sources by a

spread spectrum technique. Benhaddou et al. disclose spread spectrum optical CDMA signals and disclose the ability of transmitted optical spread spectrum signals to be multiplexed on one medium, and also disclose communication of optical CDMA over a WDM switch network, including wavelength selective routing in the network (page 286, col. 1, section 2, paragraph 3 to end of section 2). It would have been obvious to one of ordinary skill in the art at the time of the invention that to use optical CDMA over the network claimed by US Patent No. 67631914, since optical CDMA provides the advantage of supporting different data packet sizes and allowing multiple users to access bandwidth simultaneously, and since one or more optical CDMA signals can be carried over a multiwavelength system, as taught by Benhaddou et al.

Regarding claims 2, 10 and 11, US Patent No. 67631914 claims an apparatus and method according to claims 1 and 9 and wherein each of said upstream optical signal samples obtained from the first source and said upstream optical signal samples obtained from the NS sources comprises upstream optical signal samples that occupy a wavelength band, and said optically converting comprises: dropping said upstream optical signal samples obtained from the first source and at least one of the following: said upstream optical signal samples that are separately obtained from said NS sources, and the n series of upstream optical signal samples; converting the dropped upstream optical signal samples obtained from the first source into a first series of upstream optical signal samples centered around a channel wavelength  $\lambda_{sub,D}$ , and respectively converting at least one of the following: the dropped upstream optical signal samples that are separately obtained from said NS sources into NS series of upstream optical signal samples centered around said channel wavelength  $\lambda_{sub,D}$ , and any of the  $\lambda_{sub,i}$  that differ from  $\lambda_{sub,D}$  to  $\lambda_{sub,D}$  thereby forming a group of n series of upstream optical signal samples having the upstream optical signal samples carried over  $\lambda_{sub,D}$ ; and combining the following to obtain said broadband combined

series of upstream optical signal samples: all said series of upstream optical signal samples centered around said channel wavelength  $\lambda_{sub.D}$ ; and the  $n$  series of upstream optical signal samples in said group (US Patent No. 67631914 claims 2 and 18).

Regarding claim 3, US Patent No. 67631914 claims a method according to claim 2 and also comprising selecting said channel wavelength  $\lambda_{sub.D}$  prior to said converting (US Patent No. 67631914 claims 2 and 8).

Regarding claim 5, US Patent No. 67631914 claims a method according to claim 1 and wherein said destination route comprises at least one of the following: a destination fiber optic cable capable of carrying optical signal samples at said combined data rate  $DR_{sub.c}$ ; a wireless communication route; a waveguide; a transmission line; an interface to a destination optical transceiver; and an interface to a destination optical communication system capable of operating at said combined data rate  $DR_{sub.c}$  (US Patent No. 67631914 claim 6).

Regarding claims 6 and 12, US Patent No. 67631914 claims an optical switching apparatus and method for switching to  $nn$  routes a broadband series of downstream optical signal samples, where  $nn$  is an integer greater than one and the broadband series of downstream optical signal samples is provided at a data rate  $DR_{sub.T}$ , the method comprising: optically converting the broadband series of downstream optical signal samples into  $nn$  series of downstream optical signal samples at data rates  $DRT_{sub.1}, \dots, DRT_{sub.nn}$ , the  $nn$  series of downstream optical signal samples comprising at least one of the following:  $NT$  broadband series of downstream optical signal samples; and  $NST$  series of downstream optical signal samples having the downstream optical signal samples carried over discrete channel wavelengths, where each of  $nn$ ,  $NT$  and  $NST$  is an integer greater than or equal to one, and each of  $DRT_{sub.1}, \dots, DRT_{sub.nn}$  is less than  $DR_{sub.T}$ ; and routing said  $nn$  series of downstream optical signal samples to the  $nn$  routes respectively (US Patent No. 67631914

claims 12 and 23). US Patent No. 67631914 claims a series of downstream optical signal samples but does not claim that downstream optical signal samples are obtained from a spread spectrum technique. Benhaddou et al. disclose spread spectrum optical CDMA signals and disclose the ability of transmitted optical spread spectrum signals to be transmitted on one medium and demultiplexed at the receiver and also disclose communication of optical CDMA over a WDM switch network, including wavelength selective routing in the network (page 286, col. 1, section 2, paragraph 3 to end of section 2). It would have been obvious to one of ordinary skill in the art at the time of the invention that to use optical CDMA over the network claimed by US Patent No. 67631914, since optical CDMA provides the advantage of supporting different data packet sizes and allowing multiple users to access bandwidth simultaneously, and since one or more optical CDMA signals can be carried over a multiwavelength system, as taught by Benhaddou et al.

Regarding claims 7 and 13, US Patent No. 67631914 claims an apparatus and method according to claims 6 and 12 and wherein said broadband series of downstream optical signal samples obtained by utilizing a spread spectrum technique comprises downstream optical signal samples that occupy a wavelength band, and said optically converting comprises: separating said broadband series of downstream optical signal samples into nn series of downstream optical signal samples comprising at least one of the following: NT broadband series of downstream optical signal samples centered around a channel wavelength  $\lambda_{sub}T$ , and NST series of downstream optical signal samples each having the downstream optical signal samples carried over  $\lambda_{sub}T$ ; respectively converting at least one of the following: the NT broadband series of downstream optical signal samples centered around  $\lambda_{sub}T$  into NT broadband series of downstream optical signal samples centered around NT channel wavelengths of which NT-1 channel wavelengths are different from

.lambda..sub.T, and said NST series of downstream optical signal samples into NST series of downstream optical signal samples having the downstream optical signal samples carried over NST channel wavelengths of which NST-1 channel wavelengths are different from .lambda..sub.T; and respectively adding said NT broadband series of downstream optical signal samples centered around NT channel wavelengths to NT routes of said nn routes, and said NST series of downstream optical signal samples carried over the NST channel wavelengths to NST routes of said nn routes (US Patent No. 67631914 claims 12 and 13, and claims 23 and 24).

Regarding claim 16, US Patent No. 67631914 claims a communication network comprising a node server, a plurality of end nodes, and a communication switch comprising the optical switching apparatus of claim 9 in operative association with the node server and the plurality of end nodes (US Patent No. 67631914 claim 22).

Regarding claim 17, US Patent No. 67631914 claim a communication network comprising a node server, a plurality of end nodes, and a communication switch comprising the optical switching apparatus of claim 12 in operative association with the node server and the plurality of end nodes (US Patent No. 67631914 claim 25).

#### ***Allowable Subject Matter***

5. Claim 4, 8 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Art Unit: 2633

6. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.



JASON CHAN  
SUPERVISOR PATENT EXAMINER  
TECHNOLOGY CENTER 2600